STATISTICAL PRIMER

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Mapping Mortality and Morbidity Rates

by

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Introduction

Maps are powerful tools used to analyze and compare a wide range of geographically referenced data. The last third of the twentieth century has witnessed the increasing use of maps to portray statistical information. Maps of mortality and morbidity are useful for assessing relationships with potential risk factors. They can also be used to track progress in public health programs and policy development.

A map is a model of the world. Like any model, a certain amount of information is omitted to make the map comprehensible to the viewer. Because of this simplification, it is necessary for a map to include tools such as symbols and keys to assist the map-reader in interpretation. The methods used in map construction and the tools used to interpret them are part of the repertoire of modern *geographic information systems* (GIS). GIS stores, retrieves, and integrates disparate geographical data to create map *layers*. These layers portray information about a wide range of topics, using a set of conventional symbols. Layers form the basis of a *thematic* map.

The focus of this *Statistical Primer* is the interpretation and analysis of a specific type of thematic map that portrays mortality and morbidity rates, which is produced at the State Center for Health Statistics (SCHS) in North Carolina. To this end, the *Primer* will introduce basic concepts such as geographic units of analysis, data classification, and some uses of symbols. Map interpretation basics will also be introduced. The maps in this Primer were created using ArcGIS, ESRI Inc., 2001.

Choropleth Maps

Most of the maps developed by the SCHS are based on geographic areas, which are usually represented as *polygons*. They can be political and administrative entities like counties, census tracts, cities, or minor civil divisions. Areas can also represent biological and environmental phenomena like drainage basins, soil types, vegetation zones, climate areas, and geologic structure. Each county, for example, can have thousands of variables assigned to it that describe a diverse set of characteristics such as population structure, economic data, housing characteristics, or birth rates. These variables, or attributes, can then be arranged into a